Facility Classification Standards

NOVA SCOTIA

Environment and Labour

Approval Date: December 12, 2005 Effective Date: December 12, 2005

Approved By: William Lahey, Deputy Minister

Version Control:	New Standard (to replace tables within *Water and Wastewater Facilities and Public Drinking Water Supply Regulations)*

I. PREFACE

Water and wastewater treatment facility classification is based on a point system developed by the Association of Boards of Certification (ABC) for use by certifying authorities such as Nova Scotia Environment and Labour (NSEL). Facilities are rated according to their size, population served and unit processes. Classification is assigned using the following point system:

Class I = 30 points or less
Class II = 31-55 points
Class III = 56-75 points
Class IV = 76 points or greater

II. AUTHORITY

The *Water and Wastewater Facilities and Public Drinking Water Supply Regulations* require water treatment and wastewater treatment facilities to be classified in accordance with the *Facility Classification Standards*.

The *Water and Wastewater Facilities and Public Drinking Water Supply Regulations* require classified facilities to be operated by certified operators.

III. APPLICATION

The *Facility Classification Standards* apply to all municipal, commercial, industrial, institutional and privately owned water and wastewater treatment facilities that meet the criteria for classification. Transient water supplies, as defined in the *Water and Wastewater Facilities and Public Drinking Water Supply Regulations*, are excluded from the classification process.

Each unit process shall have points assigned only once. Unless otherwise noted, the full amount of points shall be assigned. For multiple identical process units, do not double count. For example, a plant that has two flocculators should be given two points, NOT four points. However, for a plant having more than one type of unit for each process, points accrue for each unique unit type.

a) Water Treatment Facilities

A water treatment facility shall use Table 1 to determine the classification of the facility. A water system with a groundwater supply and only disinfection is considered a water distribution system, not a water treatment facility. A water distribution system shall be classified in accordance with Section 10(4) of the *Water and Wastewater Facilities and Public Drinking Water Supply Regulations.*

Table 1

ITEM	POINTS
Size	
Maximum population served, peak day. 1 point per 10,000 persons or any fraction thereof	1 - 10
Design flow average day or peak month's average day, whichever is larger. 1 point per 3.785 million litres per day or any fraction thereof	1 - 10
Water Supply Source	
Groundwater	3
Surface Water	5
Average Raw Water Quality	
Little or no variation	0
Raw water quality (other than turbidity) varies enough to require treatment changes approximately 10% of the time	2
Raw water quality (turbidity) varies severely enough to require pronounced or very frequent treatment changes	5
Raw water quality subject to periodic serious industrial waste pollution	10
Chemical Treatment/Addition Process	
pH Adjustment for process control	4
Stability or Corrosion Control	4

ITEM	POINTS
Taste and Odour Control	8
Colour Control	4
Fluoridation	5
Coagulation/Flocculation	
Coagulation	4
Flocculation	6
Clarification	
Sedimentation	5
Upflow Clarification	14
Filtration	
Rapid Rate	10
Iron or Manganese Removal	10
Disinfection	
Chlorination or comparable [1]	5
On-site generation of disinfectant	5
Other Treatment Processes	
Aeration	2
Packed Tower Aeration	6
Ion Exchange Softening	10
Chemical Precipitation Softening	20
Special Processes	
Reverse Osmosis	15
Electrodialysis	15
Other (specify)	2 - 15

ITEM	POINTS
Sludge Handling	
In-plant treatment of plant sludge	6
Laboratory Control - Bacteriological/Biological [2]	
Lab work done outside the facility	0
Membrane filter procedures	3
Use of fermentation tubes or any dilution method; thermotolerant coliform determination	5
Biological identification	7
Viral studies or similarly complex work conducted on-site	10
Laboratory Control - Chemical/physical [2]	
Lab work done outside the facility	0
Push button or colormetric methods for simple tests, such as chlorine residual, pH	3
Additional procedures such as titration jar tests, alkalinity, hardness	5
Highly sophisticated instrumentation such as atomic absorption and gas chromatography	10

Notes:

1. For disinfectants such as ozone, chlorine dioxide or chloramine, assign 5 points for chlorination or comparable and 5 points for on-site generation of disinfectant.
2. The key concept is to credit laboratory analysis done on-site by facility personnel.

b) Wastewater Treatment Facilities

A wastewater treatment facility shall use Table 2 to determine the classification of the facility. A wastewater system with only collection, lift stations, and disinfection is considered a wastewater collection system and not a wastewater treatment facility. A wastewater collection system shall be classified in accordance with Section 12(4) of the *Water and Wastewater Facilities and Public Drinking Water Supply Regulations*.

Table 2

ITEM	POINTS
Size	
Maximum population served, peak day. 1 point per 10,000 population served or any fraction thereof	1 - 10
Design flow average day or peak month's average day, whichever is larger. 1 point per 3.785 million litre or any fraction thereof	1 -10
Variation in raw waste (6 point maximum)[1]	
Variations do not exceed those normally or typically expected	0
Recurring deviations or excessive variation of 100 to 200% in strength and/or flow	2
Recurring deviations or excessive variation of more than 200% in strength and/or flow	4
Raw wastes subject to toxic waste discharges	6
Impact of septage or truck-hauled waste (0 point minimum to 4 point maximum)	0 - 4
Preliminary treatment	
Plant pumping of main flow	3
Screening or Comminution	3
Grit Removal	3
Equalization	1
Primary Treatment	
Clarifiers	5
Imhoff Tanks or similar	5
Secondary Treatment	
Fixed-film Reactor	10
Activated Sludge	15

ITEM	POINTS
Stabilization ponds without aeration	5
Stabilization ponds with aeration	8
Tertiary Treatment	
Polishing ponds for advanced waste treatment	2
Chemical/physical advanced waste treatment without secondary treatment	15
Chemical/physical advanced waste treatment following secondary treatment	10
Biological or chemical/biological advanced waste treatment	12
Nitrification by designed extended aeration only	2
Ion exchange for advanced waste treatment	10
Reverse osmosis, electrodialysis and other membrane filtration techniques	15
Advanced waste treatment chemical recovery, carbon regeneration	4
Media filtration	5
Additional Treatment Processes	
Chemical additions (2 points each for a maximum of 6 points)	2 - 6
Dissolved air flotation (for other than sludge thickening)	8
Intermittent sand filter	2
Recirculating intermittent sand filter	3
Microscreens	5
Generation of oxygen	5
Solids Handling	
Solids stabilization	5
Gravity thickening	2

ITEM	POINTS
Mechanical dewatering	8
Anaerobic digestion of solids	10
Utilization of digester gas for heating or cogeneration	5
Aerobic digestion of solids	6
Evaporative sludge drying	2
Solids reduction (including incineration, wet oxidation)	12
On-site landfill for solids	2
Solids composting	10
Land application of biosolids by contractor	2
Land application of biosolids under direction of facility operator in direct responsible charge	10
Disinfection (10 point maximum)	
Chlorination or ultraviolet irradiation	5
Ozonation	10
Effluent discharge (10 point maximum)	
Mechanical post aeration	2
Direct recycle and reuse	6
Land treatment and disposal (surface or subsurface)	4
Instrumentation	
The use of Supervisory Control and Data Acquisition (SCADA) or similar instrumentation systems to provide data with no process operation	0
The use of SCADA or similar instrumentation systems to provide data with limited process operation	2
The use of SCADA or similar instrumentation systems to provide data with moderate process operation	4

ITEM	POINTS
The use of SCADA or similar instrumentation systems to provide data with extensive or total process operation	6
Laboratory Control - Bacteriological/Biological [2]	
Lab work done outside the plant	0
Membrane filter procedures	3
Use of fermentation tubes or any dilution method; thermotolerant coliform determination	5
Laboratory Control - Chemical/Physical [2]	
Lab work done outside the plant	0
Push-button or visual methods for simple tests such as pH, settleable solids	3
Additional procedures such as Dissolved Oxygen (DO), Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD), gas analysis, titrations, solids, volatile content	5
More advanced determinations such as specific constituents; nutrients; total oils, phenols	7
Highly sophisticated instrumentation such as atomic absorption, gas chromatography	10

Notes:

1. The key concept is frequency and/or intensity of deviation or excessive variation from normal or typical fluctuations; such as deviation can be in terms of strength, toxicity, shock loads, I/I, with points from 0 to 6.

2. The key concept is to credit laboratory analyses done on-site by facility personnel.

Dated. December 12, 2005

Original Signed By:
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Deputy Minister